Designation: C939/C939M – 22

Standard Test Method for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)[1]

This standard is issued under the fixed designation C939/C939M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This test method covers a procedure, used both in the laboratory and in the field, for determining the time of efflux of a specified volume of fluid hydraulic cement grout through a standardized flow cone and used for preplaced-aggregate (PA) concrete; however, the test method may also be used for other fluid grouts.

1.2 It is for use with neat grout and with grouts containing fine aggregate all passing a 2.36 mm (No. 8) sieve.

1.3 This test method is intended for use with grout having an efflux time of 35 s or less.

1.4 When efflux time exceeds 35 s, flowability is better determined by flow table, found in Test Method C109/C109M, using 5 drops in 3 s.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined. Some values have only SI units because the inch-pound equivalents are not used in practice (Note 1).

NOTE 1—Sieve size is identified by its standard designation in Specification E11. The alternative designation given in parentheses is for information only and does not represent a different standard sieve size.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C109/C109M Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens)

C125 Terminology Relating to Concrete and Concrete Aggregates

C219 Terminology Relating to Hydraulic and Other Inorganic Cements

C938 Practice for Proportioning Grout Mixtures for Preplaced-Aggregate Concrete

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminologies C125 and C219.

4. Summary of Test Method

4.1 The time of efflux of a specified volume of grout from a standardized flow cone is measured.

5. Significance and Use

5.1 This test method is applicable to the determination of the fluidity of various fluid grout mixtures.

6. Interferences

6.1 The presence of solid particles retained on the 2.36 mm (No. 8) sieve or lumps of unmixed material in the grout may cause the grout to flow unevenly through the discharge tube of

[1] This test method is under the jurisdiction of ASTM Committe C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.41 on Hydraulic Cement Grouts.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

***A Summary of Changes section appears at the end of this standard**